BISS Biodiversity Information Science and Standards

Biodiversity Information Science and Standards 8: e135473
doi: 10.3897/biss.8.135473

OPEN ACCESS

Conference Abstract

The European Ocean Biodiversity Information System (EurOBIS) Celebrates Its 20th Anniversary: Where Did It Start, and What Have We Learned?

Ruben Perez Perez‡, Leen Vandepitte‡, Cyril Radermecker‡, Lynn Delgat‡, Joana Beja‡, Hans Yperman‡, Dante Dumon‡, Bart Vanhoorne‡, Lennert Tyberghein‡

‡ Flanders Marine Institute (VLIZ), Oostende, Belgium

Corresponding author: Ruben Perez Perez (ruben.perez@vliz.be)

Received: 24 Aug 2024 | Published: 26 Aug 2024

Citation: Perez Perez R, Vandepitte L, Radermecker C, Delgat L, Beja J, Yperman H, Dumon D, Vanhoorne B, Tyberghein L (2024) The European Ocean Biodiversity Information System (EurOBIS) Celebrates Its 20th Anniversary: Where Did It Start, and What Have We Learned? Biodiversity Information Science and Standards 8: e135473. https://doi.org/10.3897/biss.8.135473

Abstract

The European Ocean Biodiversity Information System (EurOBIS) was established in 2004, as part of the Marine Biodiversity and Ecosystem Functioning European Union Network of Excellence (MarBEF) project. One of the key project tasks was to integrate different resources on marine biodiversity. This gave birth to EurOBIS, a data system to capture, integrate and present distribution of marine species from individual datasets. Integration and consolidation aimed to provide a better understanding of long-term, large-scale patterns in European marine waters. The first marine biogeographic data went live in August 2004, and its data content has been growing steadily. The general EurOBIS goal is to help fill gaps in our scientific knowledge by making diverse biogeographic data on marine species freely available and accessible online. It is part of the OBIS network, focusing on data collected within European marine waters, or collected by European researchers and institutes outside Europe. EurOBIS closely collaborates with other regional OBIS nodes in Europe.

Over time, EurOBIS formed alliances with European initiatives as a supporting infrastructure and network, including serving as the backbone of the European Marine Observations and Data Network Biology (EMODnet Biology) since 2009 (Perez Perez et

© Perez Perez R et al. This is an open access article distributed under the terms of the Creative Commons Attribution License (CC BY 4.0), which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited.

al. 2023) and being part of the central LifeWatch Species Information Backbone since 2014. Both projects ensure a constant flow of marine species occurrence data to EurOBIS. Nowadays, European Horizon project calls include a clause requiring that marine data generated within these projects need to become part of European data flows, specifically becoming part of EMODnet. This involves an increase in needed support of the EurOBIS Data Management Team (DMT), and additional training of data providers on how to deal with marine biodiversity data to make them suitable for a (semi-)automated flow to EMODnet Biology. These needs are addressed in several ways, ranging from in-person data training to online training courses being offered through the Ocean Teacher Global Academy (OTGA).

The EurOBIS infrastructure is dynamic, keeping track of recent developments in the field of data formats and standards, compatible with DarwinCore (DwC) (Wieczorek et al. 2012). While EurOBIS started out as capturing presence and abundance data of species, it follows trends and needs in biodiversity informatics, allowing it to deal with all biodiversity-related measurements and DwC changes, including e.g., the development and implementation of the Extended Measurement or Fact extension (De Pooter et al. 2017).

There is a parallel evolution in the way data are being mobilized and the tools offered to make data submission as easy as possible. Early on, data were submitted largely through email or a File Transfer Protocol (FTP) server. The odd data transfer used Distributed Generic Information Retrieval (DiGIR). Since the ratification of DwC as a TDWG standard, a gradual transfer was observed from FTP and DiGIR to the usage of the Integrated Publishing Toolkit (Robertson et al. 2014) to share data. The DMT still receives datasets through email, although this is becoming an exception. The DMT also invests in online tools that help data suppliers to control their data, in terms of format, quality and adhering to accepted standards, increasing both the data quality and ease of sharing.

Over time, the DMT observed several changes within the data-providing community. The rather reluctant attitude towards sharing data of the late 1990s/early 2000s has decreased, as data management and FAIR (Findable, Accessible, Interoperable, Reusable) data (Wilkinson et al. 2016) became more embedded in the daily work of scientists. The DMT distinguishes several types of data providers:

1. the perfectionists,
2. the enthusiasts,
3. the pragmatic minimalists,
4. the legacy heirs.

Each provider type poses challenges, balancing the need to capture the minimum information for the data to become FAIR and be useable by others, and a desire to be perfect, where perfection can be hard to reach and out of the control of the provider. The biggest struggle is not the barrier of sharing data, but dealing with the illustrious monsters “quality control” and “standard vocabularies.” There is still a need to train researchers on

how to process and manage their data, which is a field where the regional and global OBIS networks can play a continuing important role.

Keywords

marine biodiversity, data infrastructure, data access, open data

Presenting author

Ruben Perez Perez

Presented at

SPNHC-TDWG 2024

Acknowledgements

The EurOBIS infrastructure and DMT funding is made possible by (1) support of LifeWatch Belgium, part of the E-Science European LW Infrastructure for Biodiversity funded by Research Foundation Flanders and (2) support of the Ecosystem Research and EMODnet Biology, financed by the EU under Regulation (EU) No 508/2014 of the European Parliament and the Council of 15 May 2014 on the European Maritime and Fisheries Fund.

Conflicts of interest

The authors have declared that no competing interests exist.

References

- De Pooter D, Appeltans W, Bailly N, Bristol S, Deneudt K, Eliezer M, Fujioka E, Giorgetti A, Goldstein P, Lewis M, Lipizer M, Mackay K, Marin M, Moncoiffé G, Nikolopoulou S, Provoost P, Rauch S, Roubicek A, Torres C, van de Putte A, Vandepitte L, Vanhoorne B, Vinci M, Wambiji N, Watts D, Klein Salas E, Hernandez F (2017) Toward a new data standard for combined marine biological and environmental datasets - expanding OBIS beyond species occurrences. Biodiversity Data Journal 5 https://doi.org/10.3897/bdj.5.e10989
- Perez Perez R, Beja J, Vandepitte L, Lipizer M, Weigel B, Vanhoorne B (2023) EMODnet Biology: Unlocking European marine biodiversity data. BISS 7: 112147. https://doi.org/10.3897/biss.7.112147
- Robertson T, Döring M, Guralnick R, Bloom D, Wieczorek J, Braak K, Otegui J, Russell L, Desmet P (2014) The GBIF Integrated Publishing Toolkit: Facilitating the Efficient

Publishing of Biodiversity Data on the Internet. PLoS ONE 9 (8). https://doi.org/10.1371/journal.pone.0102623

- Wieczorek J, Bloom D, Guralnick R, Blum S, Döring M, Giovanni R, Robertson T, Vieglais D (2012) Darwin Core: An Evolving Community-Developed Biodiversity Data Standard. PLoS ONE 7 (1). https://doi.org/10.1371/journal.pone.0029715
- Wilkinson M, Dumontier M, Aalbersberg IJ, Appleton G, Axton M, Baak A, Blomberg N, Boiten J, da Silva Santos LB, Bourne P, Bouwman J, Brookes A, Clark T, Crosas M, Dillo I, Dumon O, Edmunds S, Evelo C, Finkers R, Gonzalez-Beltran A, Gray AG, Groth P, Goble C, Grethe J, Heringa J, 't Hoen PC, Hooft R, Kuhn T, Kok R, Kok J, Lusher S, Martone M, Mons A, Packer A, Persson B, Rocca-Serra P, Roos M, van Schaik R, Sansone S, Schultes E, Sengstag T, Slater T, Strawn G, Swertz M, Thompson M, van der Lei J, van Mulligen E, Velterop J, Waagmeester A, Wittenburg P, Wolstencroft K, Zhao J, Mons B (2016) The FAIR Guiding Principles for scientific data management and stewardship. Scientific Data 3 (1). https://doi.org/10.1038/sdata.2016.18